ing surface, and the method of expressing amount of evaporation by depth of water evaporated is justified. With the former value of n the depth of water evaporated varies inversely as the square root of the radius of the dish.—*R. C[orless]*.

REDETERMINATION OF HEAT OF VAPORIZATION OF WATER.[2]

By J. H. MATHEWS.

[*Reprinted from* Science Abstracts, Sect. A, Jan. 31, 1918, § 77.]

The author has redetermined the heat of vaporization of water, using the method devised by Richards and the author [Abstract 902 (1911)]. The apparatus employed has been improved more especially by the substitution of a vaporizer made of transparent quartz for those made of glass; and a better type of adiabatic calorimeter has been introduced. The water equivalent of the calorimetric system having been accurately determined, the author found that the heat required to vaporize 1 true gram of water into a vacuum at 100° is 539.0 calories$_{15°}$. Using another value of the water equivalent of the apparatus determined by an electrical method, the value for the heat of vaporization was found to be 540.0 calories$_{15°}$, a number that is in good agreement with that obtained by Smith, viz, 540.7 calories.—*A. F[indlay]*.

SUGGESTIONS AS TO THE CONDITIONS PRECEDENT TO THE OCCURRENCE OF SUMMER THUNDERSTORMS, WITH SPECIAL REFERENCE TO THAT OF JUNE 14, 1914.

By J. FAIRGRIEVE.

(*Abstract* of a paper presented to the Royal Meteorological Society, London, Apr. 17, 1918.

[*Reprinted from* Nature, London, May 2, 1918, 101: 179.]

The paper deals particularly with the thunderstorm of June 14, 1914. The meteorological phenomena accompanying the rainfall are put on record. The cloud distribution, the barometric pressure, the wind movements, and the temperature are specially dealt with. From an examination of the data it is evident that the clouds and the rainfields lie in parallel belts, and that the former appear some hours before the rain begins to fall. It is suggested that this belting of wind and rain may be due to rippling on a large scale, the rippling being brought about by the interaction of two currents of different temperatures. If the conditions are unstable, and especially if relief also induces disturbance, thunderstorms will develop along lines of rippling, and will drift with the wind. Thunderstorms have apparently three movements, a development along a belt, a sideways movement in the direction of the prevailing wind, i. e., to leeward, and a spread to windward. The first may be due to rippling; the second is a drift; the third may be explained if it is granted that a local ridge of high pressure develops along the axis of the thunderstorm. The thunderstorm then breaks up into two belts, of which the leeward soon dies out owing to the lack of a supply of rising air.

Topographic conditions from Allegheny Front eastward specially favor studies testing this theory.—C. A. jr.

[2] Jour. phys. chem., October, 1917, 21: 536–569.

EARTHQUAKE WEATHER.

The term "earthquake weather" is often encountered in California, but meteorological textbooks do not mention it. Those who use the term are unanimous in referring to a condition of hot and calm weather, without much cloud, but usually more or less haze. The condition is not greatly unlike that which usually precedes a summer afternoon thunderstorm in the Middle West. As the term "earthquake weather" has not yet become commonplace in scientific literature it would be interesting to learn what seismologists think about the matter.

The above paragraph appears in a recent issue of the Bulletin of the Seismological Society of America[1] in comment on the statement by Wendell P. Hoge, of the Mount Wilson Solar Observatory, that the 'quake of July 15, 1917, 11:05 a. m. at that observatory came with—

Weather partly cloudy, wind south, 3 mis./hr., relative humidity about 30 per cent, temperature 87°. General character of the weather for several days such as is often spoken of as "earthquake weather."

Readers of the MONTHLY WEATHER REVIEW may be interested in the following summary of what has been published on the subject so far in these pages.

South Australia.—Geo. H. Styles, of Port Caroline, South Australia, reported that during the month preceding the earthquake of May 10, 1897, there, the weather had been thick and squally with the wind all round the compass. On the day of the disturbance the wind force, which had been 6 to 8 for several days, fell to 2; the direction from the northeast and the weather fine with Ci.St. clouds.

At the same place in 1900 to March, 1901, 'quakes were accompanied by a sky usually covered with heavy Cu., "one or two of them bright, as though lighted by the moon, even during the darkest moonless nights." The cumuli never coalesced but if one overtook another they were mutually repelled, drifting away in feathery flakes and dissolving into clear sky before reaching the horizon. The sky was no longer the blue of the old days but of a milky, watery color.[2]

Jamaica, B. W. I.—Maxwell Hall reports that there are not enough earthquakes in Jamaica to permit a complete investigation of a possible relationship between them and weather phenomena. He states that the cause of the oppressive weather noticed before an earthquake is the stopping or diminution of the wind. The barometer is also affected and St. tends to form.[3]

Japan.—Omori found that maximum earthquake activity generally coincides with times of high atmospheric pressures; but that just the reverse is true at some stations where it usually is accompanied by low barometric readings. The apparent contradiction has been explained away by Dr. K. Honda.[4]

California.—The California earthquake of April 18, 1906, called forth an interesting paper from San Francisco students,[5] in which the atmospheric conditions are described and commented on. That morning—the weather map for the day indicates the conditions throughout the United States just a few minutes previous to the 'quake—was clear and pleasant over the greater portion of the Pacific coast. A HIGH was moving steadily and somewhat slowly eastward across Idaho, and the pressure distribution was of a type that prevails when certain earthquakes occur in California. While experience in

[1] See *Andrew H. Palmer:* California earthquakes during 1917. Bull., Seism. soc. America, Stanford University, California, March, 1918, 8: 10.
[2] *Styles, Geo. H.* "Earthquakes, clouds, and gales at Port Carolina, So. Austr." MONTHLY WEATHER REVIEW, January, 1902, 30: 10.
[3] *Hall, Maxwell.* The Jamaica weather service. MONTHLY WEATHER REVIEW, July, 1898, 26: 304.
[4] See *Tamura's* abstract of Honda's paper, "Daily periodic changes in the level of artesian wells in Japan. MONTHLY WEATHER REVIEW, July, 1905, 33: 303–304.
[5] *Richter & McAdie.* Phenomena connected with the San Francisco earthquake. MONTHLY WEATHER REVIEW, November, 1907, 35: 505.